conducted to identify economic evaluations of IBD therapy reporting incremental cost-effectiveness or cost-utility ratios (ICERs or ICURs). The literature search was performed using electronic databases. Searches were limited to full economic evaluations published in English or French between 2003 and 2013. Cross-reference of retrieved articles was also performed to identify additional publications. **RESULTS:** A total of 15,242 potentially relevant studies were identified. After screening titles and abstracts, 43 full-text articles were assessed according to the eligibility criteria and 35 studies were included. Among those, 3 studies assessed the economic impact of IBD treatments with a companion diagnostic test. A high proportion of economic evaluations was performed from a third party payer perspective (91%) and had time horizons of 1 year or less (46%). European, American and Canadian economic evaluations accounted for 66%, 17% and 11% of the studies respectively. Treatment options under evaluation included azathioprine, infliximab, adalimumab, immunosuppressant and mesalamine. Most included studies were cost-utility analyses (94%), with ICURs ranging from dominant to CAD$11,934,934/QALY. More specifically, treatment under investigation was dominant in 26% of the analyses and was cost-effective according to a CAD$50,000/QALY and a CAD$100,000/QALY threshold in 31% and 65% of the analyses respectively. **CONCLUSIONS:** Several economic evaluations were conducted in the past years, with different parameters and results. As more treatment options become available, this review provides a comprehensive overview of evaluations previously performed and could be helpful in the realization of future economic evaluations.

PGI17

PREVENTION OF CYTOMEGALOVIRUS IN LIVER TRANSPLANT RECIPIENTS BEFORE AND AFTER PROTOCOL CHANGE: A COST-EFFECTIVENESS ANALYSIS

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OBJECTIVES: Valganciclovir (VGV) is an antiviral agent used as prophylaxis of cytomegalovirus (CMV) infection following solid organ transplant. Limited studies regarding CMV prophylaxis with VGV in liver transplant recipients (LTR) have been performed. This study is a cost effectiveness analysis of VGV prevention strategies in LTR from a payer perspective. **METHODS:** We evaluated the cost of preventing hospitalization due to CMV in LTR at moderate to high risk of CMV. A decision tree model was constructed using TreeAge 2013. Data source for effectiveness was used from the results of our single-center retrospective analysis and cost data were from previously published data and the RedBook®. The model included costs of CMV prophylaxis, rates of CMV viremia, costs of outpatient treatment, and rates of inpatient admission due to CMV. We compared two protocols, one using lower doses and shorter duration of VGV prophylaxis (Group A) to a more recent protocol utilizing both higher doses and longer duration of VGV prophylaxis (Group B). Costs expressed in 2013 US dollars. **RESULTS:** Costs associated with prophylaxis in group A were lower, despite a higher percentage of patients requiring treatment. Cost per-patient for prophylaxis in group A was $8,535.42 versus $14,926.73 in group B. In patients with CMV infection, 50% required hospitalization regardless of VGV prophylaxis group. Thus, 10% of patients in group A were hospitalized for treatment of CMV infection and only 4% of patients in group B required hospitalization. An ICER demonstrated that the prevention of one inpatient hospitalization due to CMV would cost $106,521.83. A one-way sensitivity analysis varying cost of VGV based on previously published costs demonstrated that the ICER for group B varies from $70,316 to $131,902. **CONCLUSIONS:** While the increased dose and duration of VGV is effective at preventing CMV infection and hospitalization, it is associated with a large incremental cost.

PGI18

ASSESSING THE POTENTIAL COST-EFFECTIVENESS OF A SMOKING CESSATION PROGRAM PRIOR TO ELECTIVE SURGERY

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OBJECTIVES: Cigarette smoking increases the risk of postoperative complications. Preoperative smoking cessation programs may reduce surgical and post-operative complications, as well as the costs associated with treating them. We aimed to create an economic evaluation framework to estimate the potential value of preoperative smoking cessation programs for patients undergoing elective colorectal surgery. **METHODS:** A decision-analytic model was developed from the payer perspective to integrate the costs and incidence of post-operative complications for a patient undergoing elective colorectal surgery after a smoking cessation program versus usual care. Incidence of post-operative complications in the first 30 days for smokers and recent quitters were derived from a cohort of 1,543 patients undergoing elective colorectal resections in Washington State's Surgical Care and Outcomes Assessment Program (2011-2013). Costs, smoking cessation program efficacy and alternative probabilities were obtained from the literature. Sensitivity analyses were performed to account for uncertainty in these estimates. **RESULTS:** For a cohort of 5,000 patients undergoing a preoperative smoking cessation program, the base case estimates imply the prevention of 9 respiratory complications, 16 infectious complications, and 2 thromboembolic complications, but there would be 4 more cardiovascular complications. The total direct medical costs of complications for patients who underwent a preoperative smoking cessation program were on average $138 lower per patient than those in the usual care group during the first 30 days after surgery. The model was most sensitive to smoking cessation program effectiveness, but remained dominant across all sensitivity analyses. **CONCLUSIONS:** A preoperative smoking cessation program is predicted to be cost-saving in the short term given the base case smoking cessation efficacy of 22% if the cost of the intervention per patient is below $140. This framework allows payers to determine the value of smoking cessation programs of variable cost and effectiveness.

PGI19

COST-EFFECTIVENESS ANALYSIS OF TREATMENT STRATEGIES FOR INITIAL CLOSTRIDIUM DIFFICILE INFECTION

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OBJECTIVES: *Clostridium difficile* infection (CDI) costs the US health care system over $3 billion annually. Current guidelines recommend metronidazole as first-line therapy in most instances of CDI. However, vancomycin is recommended for recurrent CDI (RCDI). A growing body of evidence supports the use of fecal microbiota transplantation (FMT) as a therapeutic option for RCDI. This study explores cost-effectiveness of FMT and vancomycin versus metronidazole for initial CDI. **METHODS:** We constructed a decision-analytic computer simulation using inputs from the published literature to compare a 10-14-day course of oral metronidazole or vancomycin to FMT for initial CDI. Parameters included cure rates (range) for metronidazole [80% (65-85%)], vancomycin [90% (88-92%)] and FMT [91% (83-100%)]. The direct costs (range) of metronidazole, vancomycin and FMT, adjusted to 2011 dollars, were $57 ($43-72), $1347 ($1195-1499) and $1086 ($815-1358), respectively. Our effectiveness measure was quality-adjusted life years (QALYs). Analysis was performed from the 3rd-party payer perspective and one-way and probabilistic sensitivity analyses were conducted. **RESULTS:** Base case analysis showed that FMT ($1585, 0.242 QALYs) was more costly and more effective than metronidazole ($1167, 0.238 QALYs), yielding an ICER of $101,647/QALY. FMT was dominant (less expensive and more effective) compared to vancomycin ($1890, 0.241 QALYs). One-way sensitivity analyses showed that metronidazole dominated both competing strategies if its probability of cure was > 90%; FMT dominated if it cost <$667. In a probabilistic sensitivity analysis at a willingness-to-pay threshold of $100,000/QALY, metronidazole was favored in 50% of model iterations; FMT was favored in 45%. **CONCLUSIONS:** Our results suggest that metronidazole, as the first-line treatment for CDIs, may be less costly, but that FMT and vancomycin are more effective. However, FMT is less likely to be economically favorable, and vancomycin is unlikely to be favorable as first line therapy when compared to FMT, due to higher cost and less effectiveness.

PGI20

COST-EFFECTIVENESS OF GOLIMUMAB VERSUS INFLIXIMAB AND ADALIMUMAB FOR THE TREATMENT OF MODERATE TO SEVERE ULCERATIVE COLITIS

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OBJECTIVES: Based on a recent indirect treatment comparison, golimumab showed comparability in efficacy and safety to infliximab and superiority to adalimumab in efficacy in terms of sustaining clinical outcomes. For this reason, a cost-effectiveness (CE) analysis comparing the three anti-TNF-α agents was conducted. **METHODS:** A Markov model was created to simulate patients over 10 years. The first administered intervention was any of the three biologics. Health states included clinical remission, clinical response, and relapse. Upon relapsing with the administered biologic, patients were assumed to transition into 'relapse management'. Patients would then undergo colectomy and enter 'post-colectomy remission'. Utilities were assigned separately for states before and after colectomy. Canadian cost estimates were used. Uncertainty around transition probabilities and cost estimates were incorporated. Sensitivity analyses included a societal perspective, varying discount rates, and time horizons, and 'real world' transition probabilities. Measures included total cost and utility over 10 years, mean incremental cost and utility per year, incremental CE ratios (ICERs), CE acceptability curves (CEACs) for golimumab and the CE frontier for all biologics. **RESULTS:** In all analyses, golimumab yielded the lowest ICER. In the base case analysis, golimumab, infliximab, and adalimumab were associated with ICERs of approximately $40,000/QALY, $80,000/QALY, and $100,000/QALY, respectively. The CEAC for golimumab showed that a willingness-to-pay threshold (WTPs) of $100,000/QALY was associated with a ~90% probability of being cost-effective. The cost-effectiveness frontier demonstrated that WTP thresholds greater than $25,000 showed that golimumab had the greatest probability of being cost-effective. Golimumab and infliximab displayed extended dominance compared to adalimumab. Sensitivity analysis taking a societal perspective or using 'real world' transition probabilities reduced the ICERs by 20-40% for all biologics. **CONCLUSIONS:** Overall golimumab provides a cost-effective treatment option for patients who have had an inadequate response to conventional therapy for moderately to severely active ulcerative colitis.

PGI21

IMPACT OF LINACLOTIDE ON WORK PRODUCTIVITY AND DAILY ACTIVITY IMPAIRMENT AMONG ADULTS WITH IRRITABLE BOWEL SYNDROME WITH CONSTIPATION: RESULTS FROM A 26-WEEK PHASE 3 TRIAL

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OBJECTIVES: To evaluate the long-term impact of linaclotide on work productivity and activity impairment in adults with irritable bowel syndrome with constipation (IBS-C). **METHODS:** In a 26-week phase 3 trial, 804 adults meeting modified Rome II criteria for IBS-C were randomized to oral once-daily 290-mcg linaclotide or placebo. The self-administered 6-item Work Productivity and Activity Impairment Questionnaire for IBS-C (WPAI:IBS-C) evaluated IBS-C-related absenteeism (work hours missed), presenteeism (lost productivity at work), overall work productivity loss (absenteeism + presenteeism), and daily activity impairment (housework, shopping, childcare, exercising, etc) over the previous week at baseline and weeks 4, 8, 12, 16, 20, and 26 during the treatment period. Overall work productivity losses were converted into monetary values using the human capital method by multiplying total hours lost by average hourly employment cost of a US employee ($31.16 in September 2013). **RESULTS:** Of 804 patients, 780 (97.0%) completed a baseline and ≥1 postbaseline WPAI:IBS-C assessment. Of these, 586 patients (75.1%) were currently employed. Linaclotide treatment was associated with statistically significant reductions in presenteeism, overall work productivity loss, and daily activity